

# EFFECT OF BONE MEAL SUPPLEMENT ON REPRODUCTION OF MELENGESTROL ACETATE-SYNCHRONIZED NATIVE CATTLE

S. C. Bantugan and J. R. Escaño

Instructor, Department of Animal Science and Veterinary Medicine, Visayas State College of Agriculture, Baybay, Leyte, Philippines; and Assistant Professor, Dairy Training and Research Institute, University of the Philippines at Los Baños, College, Laguna, Philippines, and concurrently, Agri-Business Director, Carnation Philippines, Inc.

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## ABSTRACT

Bone meal supplement slightly improved the reproductive performance of melengestrol acetate (MGA)-synchronized native cattle. Synchronized estrus was higher among cows (80%) and among heifers (90%) in the bone meal supplemented group compared to 80% among cows and 60% among heifers in the control group. The overall breeding effects showed that bone meal supplement had no effect on conception rate among heifers wherein 66.7% conception was recorded on both treatments with 1.7 and 2.0 services per conception in the bone meal supplemented and control group, respectively. Cows showed 62.5% conception with 1.8 services per conception in the bone meal supplemented group compared to 37.5% conception with 2.0 services per conception in the control. No significant differences were observed in all the reproductive parameters investigated.

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Many researches have been directed toward practical means of regulating estrus cycle in cattle to expand the use of artificial insemination. While considerable progress has been made, no entirely practical and generally accepted method has yet been developed (Hansel, 1970).

Although some cattlemen in the Philippines have been practicing

bone meal plus salt supplementation in their cattle feeding operations, no experimental data have been published on the beneficial effects of such routine. Furthermore, there is no study reported so far, either locally or abroad, on bone meal supplementation of melengestrol acetate (MGA)-synchronized cattle on reproductive performance.



Forty non-pregnant native cattle (20 cows and 20 heifers) of varied ages ranging from three to four years and five to nine years for heifers and cows, respectively, were grouped into either cow or heifer. The animals in each group were randomly allotted to two experimental treatments as follows: I - With bone meal and II - Without bone meal. Bone meal was added at the rate of 3% of the ration consisting of rice bran (30%), copra meal (50%) and yellow corn (17%). Each animal was given 1.5 kg of concentrate daily for two months which started three days after deworming.

A dose of 1.0 mg MGA per head per day was given as a drench for 14 consecutive days starting at one month from the start of concentrate feeding. All the animals were observed for estrus during and after the withdrawal of MGA. Estrus observation was done from 5:00 to 9:00 a.m. and from 3:00 to 8:00 p.m. Animals observed in heat in the morning were bred in the afternoon, and animals observed in heat in the afternoon were bred in the morning of the following day.

Results revealed that a total of eight (80%) cows showed estrus both in the bone meal supplemented and control group, while nine (90%) and six (60%) heifers manifested the same signs in the bone meal supplemented and control group, respectively. The first cycle estrus synchronization were 70% among cows and 60% among heifers when supplemented with bone meal, and 50% among cows and 20% among

heifers when not supplemented with bone meal. On the other hand, second cycle estrus synchronization were 33% among cows and 75% among heifers in the supplemented group compared to 60% among cows and 50% among heifers in the control group. No significant difference was observed between treatments.

On the basis of MGA treatment regardless of bone meal supplementation, the results obtained conform with the findings of Roussel and Beatty (1969), Boyd (1970), Wagelie and Ledesma (1975), and Little (1975).

The conception rates obtained from MGA-synchronized cattle given ration with and without bone meal showed that four of the seven (59%) cows bred during the first heat period and three of the six (50%) heifers conceived in the bone meal supplemented group against none of the five cows and one of the two (50%) heifers in the control group bred during the same period. On the other hand, artificial insemination (A.I.) services during the second heat period showed the highest percentage conception to as high as 100% at one out of one cow and three out of three heifers in the bone meal supplemented group. Similarly, three of the three (100%) cows and three of the four (75%) heifers conceived in the control group. These observations were in agreement with the findings of Wagelie and Ledesma (1975). It was also observed that A.I. services made during the month of March when there is 82% relative humidity



resulted in the highest conception rate.

Considering the two heat periods, 66.7% conception was recorded among heifers of both treatments at six out of nine and four out of six in the bone meal supplemented and control groups, respectively. Five of the eight (62.5%) cows conceived in the bone meal supplemented group compared to three of the eight (37.5%) cows in the control. No significant differences were noted between treatments. These observations conform with the results obtained by Teleni, *et al.* (1977), Holroyd, *et al.* (1977), and Becker, *et al.* (1965).

There were 31 animals bred of which 17 (eight cows and nine heifers) belonged to the bone meal supplemented group and 14 (eight cows and six heifers) to the control group. A total of nine services of the five pregnant cows for 1.8 services to effect conception and a total of 10 services of the six pregnant heifers for 1.7 services per conception were noted in the bone meal supplemented group. A total of six services in three pregnancies among cows for 2.0 services per conception and four pregnancies out of eight services among heifers for 2.0

services per conception were noted in the control group.

The total feed cost for the bone meal supplemented animals was higher than that of the control. A total of ₱2,124 was spent for the concentrate with bone meal, compared to ₱1,638 for the ration without bone meal (₱7.30 = \$1.00). However, on the cost per conception basis, the addition of bone meal seemed to be economical. An amount of ₱193.09 per conception was recorded for cows and heifers given rations with bone meal, while those given rations without bone meal required ₱234 per conception. Because of a relatively high conception rate among heifers, cost per conception becomes low.

On the other hand, a total of ₱480 was used for MGA treatment. About ₱0.86 per dose or ₱12 per animal for 14 days was recorded. Lesser cost per conception was noted among cows and heifers in the bone meal supplemented group than the control. Like the concentrates, MGA indicated a lower cost per conception among heifers of both treatments at ₱18 and ₱36 among cows in the bone meal supplemented and control groups, respectively.

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